

Karunya Institute

IPE + JEE Main (MPC) : Exam Pattern & Syllabus

Marks & Exam Pattern (IPE & JEE Main)

Exam	Subjects	Marks per Subject	Total Marks
IPE	Maths, Physics, Chemistry, English, Telugu (or 1st Lang)	100 each	500 / year
JEE Main	Maths, Physics, Chemistry	100 each	300 total

→ IPE Practical Subjects (Physics & Chemistry):

- **85 marks** for the Theory exam.
- **15 marks** for the Practical exam.

→ JEE Main Pattern:

- **25 Questions** per subject (20 Multiple Choice Questions + 5 Numerical Value Questions).
- Marking Scheme: **+4** for a correct answer, **-1** for a wrong answer (MCQ only).

IPE MPC Syllabus – Topic-wise

Maths (IA + IB = 100 Marks)

- **2A Topics:**
 - Complex Numbers
 - De Moivre's Theorem
 - Quadratic Expressions
 - Theory of Equations
 - Permutations & Combinations
 - Binomial Theorem
 - Sequences & Series
 - Probability
 - Mathematical Induction
 - Matrices

- Determinants
- **2B Topics:**
 - Functions
 - Limits & Continuity
 - Differentiation & Integration
 - Differential Equations
 - Tangents & Normals
 - Maxima & Minima
 - Probability Distributions
 - Linear Programming
 - Vectors & 3D Geometry

Physics (85 Theory + 15 Practical)

- Electrostatics
- Current Electricity
- Magnetism & Electromagnetic Induction
- Alternating Current (AC)
- Electromagnetic Waves
- Ray Optics & Wave Optics
- Dual Nature of Matter
- Atoms & Nuclei
- Semiconductor Devices
- Communication Systems

Chemistry (85 Theory + 15 Practical)

- **Physical Chemistry:**
 - Solid State
 - Solutions
 - Electrochemistry
 - Chemical Kinetics
 - Surface Chemistry
- **Inorganic Chemistry:**
 - p-Block Elements (Groups 15, 16, 17, 18)

- d-Block and f-Block Elements
- Coordination Compounds
- Qualitative Analysis
- **Organic Chemistry:**
 - Haloalkanes & Haloarenes
 - Alcohols, Phenols, & Ethers
 - Aldehydes, Ketones, & Carboxylic Acids
 - Organic Compounds with Nitrogen
 - Biomolecules
 - Polymers
 - Chemistry in Everyday Life

1.JEE Main MPC Syllabus – Topic-wise

Mathematics

- **Class 11:** Sets, Relations & Functions, Trigonometry, Complex Numbers, Quadratic Equations, Sequences & Series, Permutations & Combinations, Binomial Theorem, Straight Lines, Circles, Conic Sections (Parabola, Ellipse, Hyperbola), Limits & Derivatives, Probability.
- **Class 12:** Matrices & Determinants, Continuity & Differentiability, Application of Derivatives, Integrals, Differential Equations, Vectors & 3D Geometry, Linear Programming, Probability Distributions.
- **Note:** *Mathematical Reasoning* has been deleted from the JEE syllabus.

Physics

- **Class 11:** Units & Measurements, Motion in a Straight Line, Laws of Motion, Work, Energy, Power, Rotational Motion, Gravitation, Mechanical Properties of Solids & Fluids, Thermodynamics, Kinetic Theory of Gases, Oscillations & Waves.
- **Class 12:** Electrostatics, Current Electricity, Magnetism, EMI & AC, Ray & Wave Optics, Modern Physics (Dual Nature, Atoms, Nuclei), Semiconductors.
- **Note:** *Communication Systems* has been removed from the JEE syllabus.

Chemistry

- **Class 11:** Some Basic Concepts, Structure of Atom, Periodic Table, Chemical Bonding, Thermodynamics, Equilibrium, Redox Reactions, s-Block Elements, Organic Chemistry Basics, Hydrocarbons.

- **Class 12:** Solid State, Solutions, Electrochemistry, Chemical Kinetics, p-Block, d & f-Block Elements, Coordination Compounds, Haloalkanes & Haloarenes, Alcohols, Phenols, Ethers, Aldehydes, Ketones, Acids, Compounds Containing Nitrogen, Biomolecules.

"At Karunya Institute, we deliver structured training focused on a single goal: achieving maximum results with a limited number of students to ensure personalized success."